Proceedings of the Iowa Academy of Science

Volume 36 | Annual Issue Article 64

1929

Additional Significant Pleistocene Sections in Iowa

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ADDITIONAL SIGNIFICANT PLEISTOCENE SECTIONS IN IOWA

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This paper includes descriptions and interpretations of drift sections which were made available for study recently in the following places in Iowa:

(a) In section 20, Denmark township, Lee county, and in section 4, Washington township, Lee county; also in a small valley followed by the Chicago, Burlington & Quincy railroad in sections 28 and 33, Washington township, Lee county. In these places in southeastern Iowa the relationships of the Nebraskan drift to the Kansan and Illinoian drifts are shown clearly. Nebraskan gumbotil, Kansan gumbotil, and Illinoian gumbotil are present in this part of the state.

(b) In the Afton Junction region in Union county. In 1927 at the base of a new road cut one-half mile west of Thayer station, in Jones township, peat was exposed. When the cut was examined the peat could be seen extending about three feet along the base of the cut and rising a foot and a half above the gutter. The peaty zone grades horizontally into brown carbonaceous silts and sandy silts. Above the peat are gray silts with a maximum thickness of seven feet. Above the silts is till and sandy and gravelly till, the lower part of which is oxidized and highly calcareous while the upper part is oxidized and leached. This is Kansan till, which is widely distributed and well exposed in this vicinity. The peat exposure has an elevation of about 1100 feet, which is the approximate elevation of the upper surface of the extensive gravels in the famous Thayer pit, which is less than one mile south of this peat bed. The evidence indicates that the gravels beneath Kansan till in the Thayer pit are lower topographically than the peat, which is in turn lower than outcrops of Nebraskan gumbotil in road cuts east of Thayer. The peat bed is Aftonian in age and the gravels in the Thayer pit are interpreted to be Nebraskan in age as they lie below the extension of the Nebraskan gumbotil plain, on the surface of which the peat was developed. The Nebraskan gumbotil and the peat are at the Aftonian stratigraphic horizon.

(c) East of the Little Sioux river at Cherokee, Cherokee county. In making a satisfactory road grade from the Sioux river flood-plain level to the upland some splendid cuts were made. These cuts were studied by Carman and Kay in the summer of 1927 and again by Kay in 1928. The section is as follows:

At the base of the slope there is a cut in the lower part of which is gray unoxidized and unleached Nebraskan till, in the upper part of which there is considerable secondary calcium carbonate in nodules or concre-

tions. Above the unoxidized and unleached Nebraskan till there is about eight feet of leached Nebraskan till or gumbotil. Farther along the road the Nebraskan gumbotil and Nebraskan till are ploughed by Kansan till. In depressions on the eroded surfaces of the Kansan till are Loveland silts which are overlain by Iowan till and gravelly till which in turn are overlain by Peorian loess. A composite section along this road from the east edge of the Little Sioux flood-plain to the upland about one-half mile farther east shows the following materials: Nebraskan till, Nebraskan gumbotil, Kansan till, Loveland silts, Iowan till and gravels, and Peorian loess.

(d) On primary road 18 east of the crossing of the Big Sioux, in section 16, Lyon township, Lyon county. Here a composite section of about 110 feet in thickness representing the kinds of material to be seen in these splendid cuts is as follows: FEET

5. Loess, buff-colored, lowest one foot gray and has iron tubules; unleached except upper three feet, which is dark brown and leached ---------- 14
4. Till, Kansan, oxidized, unleached, has concretions, sand pockets, breaks into irregular shaped fragments, jointed ---------- 38
3. Silts, alternating bands of dark brown chocolate-colored calcareous silts and lighter colored loess-like silts with no pebbles and highly calcareous and having concretions ---------- 30
2. Till, Nebraskan, oxidized and unleached, dark brown, chocolate-colored stains along many joints, many lines of concretions, breaks into irregular fragments ---------- 10½
1. Till, Nebraskan, unoxidized and unleached, dark gray in color, highly calcareous, has concretions, starchlike fracture ---------- 15

The silts in this section are interpreted to be of interglacial origin and to be Aftonian in age.

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THE STORY-MARSHALL TORNADO OF AUGUST 20, 1928

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This storm began in Nevada and moved eastward about twenty miles between 6:30 and 7:00 o'clock p.m. Its path, at first only two rods wide, increased somewhat irregularly as it advanced reaching a maximum of nearly 100 rods about fifteen miles from the starting point. The tornado moved north four miles in going eighteen and one-half miles east.

The greatest damage was done by the storm in Nevada, and in rural districts where it crossed building sites at highway intersections as at the Lounsbury farm three miles northwest of Colo.